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FEDERAL COMMUNICATIONS COMMISSION

47 CFR Part 54

[WC Docket No. 10-90; DA 13-2304]

Availability of Version 4.0 of the Connect America Fund Phase II Cost Model; Adopting Current Default Inputs in Final Version of Model

AGENCY: Federal Communications Commission.

ACTION: Proposed rule.

SUMMARY: In this document, the Wireline Competition Bureau announces that version four of the Connect America Cost Model (CAM v4.0) will be available shortly. The Bureau seeks comment on whether the Bureau should adopt this version of CAM and the default inputs for purposes of calculating cost in price cap areas for implementing Connect America Phase II.

DATES: Comments are due on or before January 7, 2014.

ADDRESSES: Interested parties may file comments on or before January 7, 2014. All pleadings are to reference WC Docket No. 10-90. Comments may be filed using the Commission's Electronic Comment Filing System (ECFS) or by filing paper copies, by any of the following methods:

- **Electronic Filers:** Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- **Paper Filers:** Parties who choose to file by paper must file an original and one copy of each filing.
- **People with Disabilities:** To request materials in accessible formats for people with disabilities (Braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at (202) 418-0530 (voice), (202) 418-0432 (tty).

For detailed instructions for submitting comments and additional information on the rulemaking process, see the SUPPLEMENTARY INFORMATION section of this document.

FOR FURTHER INFORMATION CONTACT: Katie King, Wireline Competition Bureau at (202) 418-7491 or TTY (202) 418-0484.

SUPPLEMENTARY INFORMATION: This is a synopsis of the Wireline Competition Bureau's document in WC Docket No. 10-90; DA 13-2304, released December 2, 2013. The complete text of this document is available for inspection and copying during normal business hours in the FCC Reference Information Center, Portals II, 445 12th Street, SW, Room CY-A257, Washington DC 20554. The document may also be purchased from the Commission's duplicating contractor, Best Copy and Printing, Inc., 445 12th Street, SW, Room CY-B402, Washington, DC 20554, telephone (800) 378-3160 or (202) 863-2893, facsimile (202) 863-2898, or via Internet at <http://www.bcpiweb.com>.

1. The Wireline Competition Bureau (Bureau) announces that version four of the Connect America Cost Model (CAM v4.0), which incorporates a number of modifications, including additional adjustments to address the unique circumstances and operating conditions in the non-contiguous areas of the United States, will be available shortly. The Bureau seeks comment on whether they should adopt this version of CAM and the default inputs for purposes of calculating costs in price cap areas for implementing Connect America Phase II.

2. Overview of Changes in CAM v4.0. As described in more detail below, CAM v4.0 includes a number of modifications to address the unique circumstances and operating conditions in the non-contiguous areas of the United States. In particular, CAM v4.0 calculates the cost of submarine cables used for middle mile connections between intra-state points in non-contiguous areas. It also updates the plant mix values for the non-contiguous carriers, and assumes that buried plant is placed in conduit in non-contiguous areas to provide additional protection from harsh weather. This version modifies the prior methodology used for

determining input values for terrain in non-contiguous areas, and it treats Alaska Communications Systems (ACS) as a small carrier for purposes of calculating its operating expenses. It also uses state-specific values for certain capital expense inputs for Virgin Islands Telephone Corporation d/b/a Innovative Telephone (Vitelco). CAM v4.0 incorporates several modifications to CostQuestLandLine (CQLL) and CostQuestMiddleMile (CQMM), the proprietary applications that CAM relies on to develop the network topology for the CAM. In CQLL, the national demand location data and the terrain data were updated, and the clustering code was modified. CQMM was modified to route middle-mile connections along roads, consistent with the treatment of last mile plant in prior versions. CAM v4.0 includes inputs for submarine cable and other costs specific to non-contiguous areas, and it also adjusts the default input for the cost of money to 8.5 percent. CAM v4.0 also incorporates updated broadband coverage data.

3. Middle Mile Submarine Routes in Non-Contiguous Areas. CAM v4.0 includes the capability to model the cost of submarine cable used for middle mile connections in non-contiguous areas. Previous versions of the model did not distinguish between terrestrial routes and the submarine portions of middle mile routes in determining middle mile investment in the non-contiguous areas of the United States. The model was modified to identify middle mile routes requiring an undersea connection, including those connecting the islands in Hawaii, Puerto Rico, the U.S. Virgin Islands, and the Northern Mariana Islands, and to connect Anchorage to Juneau and the Kenai Peninsula. The Capital Expenditures (Capex) workbook was modified to include submarine cable costs and the cost for two beach manholes on each intrastate middle mile submarine route. This submarine cable is part of the middle-mile network in each area; it connects central offices just like wholly land-based middle-mile cable does. Each beach manhole is connected to a nearby central office that provides multiplexing, routing and co-location. The Bureau assumes that there is no need for duplicative facilities to provide multiplexing, routing or

co-location between central offices and therefore do not assume a full landing station at each submarine landing site. To the extent that parties disagree with that assumption, they should provide a detailed analysis in support of their position.

4. The table below shows middle mile route distances for terrestrial and submarine routes in non-contiguous areas.

| | Cabling Distance | Beach Manholes | Total MM Distance | Land MM Distance | Submarine MM Distance | % Submarine |
|----|------------------|----------------|-------------------|------------------|-----------------------|-------------|
| AK | 63,620,956 | 74 | 63,620,956 | 54,717,162 | 8,903,794 | 14.0% |
| HI | 4,657,509 | 10 | 4,657,509 | 3,622,974 | 1,034,536 | 22.2% |
| MP | 591,597 | 4 | 591,597 | 186,097 | 405,500 | 68.5% |
| PR | 3,299,014 | 4 | 3,299,014 | 3,134,003 | 165,010 | 5.0% |
| VI | 442,389 | 4 | 442,389 | 172,750 | 269,639 | 61.0% |

5. Plant Mix. CAM v4.0 includes state-specific plant mix values for the price cap carriers serving the non-contiguous United States: ACS, Puerto Rico Telephone Company (PRTC), Hawaiian Telcom, Inc. (HTI), Vitelco, and the Micronesian Telecommunications Corporation d/b/a IT&E (MTC). The plant mix values for price cap carriers serving the contiguous United States were largely based on values that reflect an inventory of existing plant mix. Several of the non-contiguous carriers have suggested that the model should use “forward-looking” plant mix values for their areas that are significantly different than their current plant mix values and the national average plant mix values in CAM v3.2.

6. Rather than use current values or the proposed forward-looking values submitted by these carriers, CAM v4.0 incorporates a hybrid approach that recognizes that there may be

good reasons in non-contiguous areas to reduce the amount of aerial plant in the future, but that an efficient carrier would likely replace aerial plant with a mixture of buried and underground plant. CAM v4.0 recognizes that buried and underground plant both provide the benefits of below-ground plant, and that an efficient carrier would choose to bury plant rather than build underground plant where technically and legally permitted, as underground plant is typically three to five times more costly than buried plant. CAM v4.0 therefore assumes the amount of underground plant would not exceed a carrier's current amount of underground plant; to the extent the carrier-submitted proposed values for underground plant are higher than current values, the excess is moved into buried plant. The table below illustrates a hypothetical example of this approach.

| | Aerial | Buried | Underground |
|------------------------|------------|------------|-------------|
| Current values | 60% | 10% | 30% |
| Forward-looking values | 10% | 30% | 60% |
| Hybrid | 10% | 60% | 30% |

7. By utilizing a greater amount of buried plant than current buried plant, the hybrid approach reflects the fact that there may be some locations where it is more efficient to decrease the amount of aerial plant in favor of buried plant. The Bureau does recognize, however, that there may be some instances when deploying underground plant may be technically or legally required. To the extent any party contends that the approach to plant mix taken in CAM v4.0 does not adequately reflect a forward-looking network, they should supply data that demonstrates what percentage of plant in the state must specifically be placed underground, as opposed to buried, due to local ordinances or for technical reasons.

8. Buried Plant in Conduit. In response to comments submitted by some carriers serving non-contiguous areas, CAM v4.0 also was modified to allow buried plant to be placed in conduit systems. Traditionally, underground plant is placed within conduit for added support and

protection and with access points via manholes, while buried plant is placed directly into the ground, without any conduit. Some non-contiguous carriers have suggested that the model should include an additional approach to plant deployment that would combine aspects of both traditional underground and buried plant. Such an approach combines buried plant techniques with conduit for added protection. The logic modification contained in CAM 4.0 allows for these “buried in conduit” systems and is used for buried plant in the non-contiguous United States.

9. Terrain. The methodology for determining whether a census block group is identified as having hard rock was modified for the non-contiguous areas of the United States. Several carriers serving the non-contiguous areas, ACS, PRTC, and HTI, requested that the model treat 100 percent of their terrain as “hard rock,” the most expensive terrain in which to place plant. This approach would significantly over-estimate the actual amount of hard rock in these areas.

10. CAM v4.0 modifies the approach for determining whether a census block group is considered to consist of hard rock in non-contiguous areas. Terrain factors for the entire country were developed for each census block group using data from the Natural Resources Conservations Service (NRCS) STATSGO data, where available. The rock hardness used in the contiguous United States for a given census block group is whichever type of rock is listed most frequently for the list of STATSGO map units in the census block group, regardless of the geographic area of those map units. The revised methodology now considers the entire census block group in non-contiguous areas, where terrain data are available, to be hard rock if at least fifty percent of the area is identified as hard rock.

11. ACS Treated as Small Carrier. CAM v4.0 shifts ACS from the “medium” carrier category, which encompasses carriers that serve between 100,000 and 1 million access lines, to the “small” carrier category, for carriers that serve fewer than 100,000 access lines. Given the other changes made in CAM v4.0, we tentatively believe that it would be reasonable to treat ACS

as a “small” carrier rather than a “medium” carrier category for the purposes of calculating its operating expense (opex) in the CAM v4.0.

12. Vitelco Capex Inputs. CAM v4.0 also includes state-specific values for certain inputs in the Capex workbook for the Virgin Islands. Vitelco submitted several proposed modifications to the Capex workbook. CAM v4.0 includes the modifications to the material costs, but not to the labor costs. The Bureau tentatively believes it would be reasonable to assume that certain materials would be more expensive in the Virgin Islands, but they are not convinced that labor costs should be adjusted upward as proposed by Vitelco.

13. Other Changes Proposed by Non-Contiguous Carriers. CAM v4.0 does not include all the changes submitted into the record by carriers serving the non-contiguous United States. In analyzing the impact of the requested changes and assessing the reasonableness of the modelled costs, we compared the costs calculated in CAM v4.0 with the embedded costs reported by the carriers. To the extent parties believe that additional modifications should be made to CAM v4.0 prior to adopting the cost model, they should provide a detailed analysis in support of their position and specify which inputs should be adjusted upwards or downwards.

14. CQLL Demand Locations. CAM v4.0 also incorporates modifications designed to ensure that the growth in demand locations for a given county are appropriately placed in areas with other residential locations. This modification does not alter the demand data sources, but modifies the methodology for random placement of housing units to prevent anomalous and potentially misleading results. Specifically, beginning with CAM v3.0, the overall increase or decrease of residential housing units in a specific county in 2011, as compared to the 2010 census counts, was randomly dispersed to census blocks based on the amount of livable roads in each census block of the county. This process may have resulted in residential housing units being assigned to census blocks for which 2010 census records showed no residential locations. CAM v4.0 uses both 2010 census block information and 2011 GeoResults geocoded residential data to

identify census blocks that have no residential locations and removes housing units that previously had been placed in these census blocks to reflect 2011 county growth. Instead, CAM v4.0 randomly places those housing units into census blocks that already contain residential locations. This random placement follows the same methods used beginning in v3.0, but improves on these methods by removing roads in census blocks without residential locations to prevent their use as possible targets for random placement. This modification impacts only about 0.1 percent of all residential demand locations, but results in a net increase in demand of approximately 3,500 Node4 locations, which had been previously excluded due to their assignment to census blocks that had no roads or fell outside of defined service areas.

15. CQLL Terrain Data. The CQLL terrain database was modified to correct an inversion in some rows impacting the rock hardness and soil texture values.

16. CQLL Clustering Code and Node3 Creator. The CQLL clustering code was modified to improve feeder path branching in areas with multiple roads. The code for the feeder allocation formulas was updated consistent with changes described in CAM v3.2 release notes that previously were addressed via an update to CQLL output. The calculations for accumulating feeder fibers of Gigabit passive optical network (GPON) splitters and special access services were modified. The fiber service terminal (i.e., pedestal) cost values used to determine the placement of Node3s (i.e., pedestals) was modified to use the installed value of a fiber service terminal; the previous value understated the cost.

17. CQMM Updates. CQMM was modified to use road distance in calculating terrestrial middle mile route distances, in most instances, and includes the capability to model the cost of submarine cable used for middle mile connections in non-contiguous areas. CQMM calculates connections between nodes using a minimum spanning tree approach. For CAM v3.2, and earlier versions of the model, distance was calculated using airline distance multiplied by 1.2 (i.e., an estimated conversion factor of airline to road distance). For CAM v4.0, distance is

calculated using either airline distance or road distance. In the non-contiguous areas of the United States, middle mile distances that include submarine routes are calculated using airline distance (x1.2). In the contiguous United States and for middle mile distances in non-contiguous areas of the United States that do not contain submarine routes, most distances are calculated using road distance. Where the ratio of road distance to airline distance is greater than 3.04, which represents the 99th percentile of the road distance to airline distance ratios for all routes used in CQMM, the distance is the airline distance multiplied by 3.04. Each route with any submarine cable is assigned two beach manholes. Submarine investment is not shared with other utilities, and is not impacted by the regional cost adjustment.

18. CQMM also was modified so that a regional tandem will no longer be able to serve a central office of a different state when states are in the same Local Access and Transport Area (LATA). For example, Minnesota and North Dakota share a LATA. With the modification, North Dakota central offices are served only by regional tandems in North Dakota. In addition, CQMM was modified to remove duplicate key values that could lead to an infinite processing loop, to remove three duplicative regional tandem locations, and to trigger repeater investment based on route distance between nodes rather than total route distance.

19. Cost of Money. In prior versions of the model, the default input values reflected a 9 percent cost of money. The previously released model outputs for CAM v3.2 used the model's default input values, but allowed Commission staff and interested parties to see how support amounts varied using both an 8 percent and 9 percent cost of money. CAM v4.0 reflects an 8.5 percent cost of money.

20. CAM Broadband Coverage. CAMv4.0 incorporates updated broadband coverage to reflect State Broadband Initiative (SBI) Round 7 data. Consistent with the process for updating broadband coverage in prior versions of the CAM, the new coverage table removes from the SBI data Cable and Fixed Wireless providers receiving subsidies, as well as those not providing voice

services as reported on FCC Form 477.

21. CAM Capex. CAM v4.0 includes in the undersea tab of the Capex workbook inputs for submarine cable and beach manholes on intrastate middle mile submarine cable routes in non-contiguous areas of the United States, described above. The cable investment is based on the same input used for undersea cabling; each beach manhole investment is estimated at \$1 million; and submarine costs are calculated using the underground fiber Annual Charge Factor.

22. CAM v4.0 also includes logic to support a “buried in conduit” method of plant placement, which allows buried plant to be placed in conduit systems. The Plant Mix Buried Conduit workbook was added, and the percentage of buried in conduit placements is an input in that workbook. Buried excavation costs are used. A toggle allows the user to exclude manholes (the current default) or to specify access points via size one manholes. Another toggle selects the type of conduit used for the buried trench; duct without inner-duct is the default.

23. In addition, CAM v4.0 includes modifications to the buried and underground formulas’ use of the Structure Sharing table (in the Plant Sharing Tables tab) and to the Engineering Rules to allow control over sizing for manholes in rural, suburban, and rural areas.

24. State Specific Capex. A State Specific Capex table and toggle were added to provide an input source for situations in which a state-specific capex input is required. When the State Specific Capex toggle is set to yes, the state-specific capex information will be taken from the State Specific Capex workbook. That is, the state specified in the State Specific Capex workbook will become the active capex values, for the specified state only, in the input collection.

25. CAM Processing Logic. When running a single state solution set, CAM previously identified the service areas to process based on the fifth and sixth characters of the service area code, but excluded those census blocks served in neighboring states. CAM v4.0 was

modified to retain all census blocks, including neighboring states, associated with service areas in which the fifth and sixth characters of the service area code match the state that is processed. This change aligns the state definition between single and multi-state solution sets, where states are defined as collections of service areas; there is no impact on investment calculations.

26. Access to CAM v4.0. Parties should follow the same procedures to access CAM v4.0 as announced for previous versions. In particular, parties may access CAM v4.0 at <http://www.fcc.gov/encyclopedia/caf-phase-ii-models> or <https://cacm.usac.org>. Additionally, authorized users who have signed the relevant attachments to the protective order will have access to a system evaluator package that provides a test environment populated with a sample database, allowing users to view database structures, observe the processing steps of CAM for a subset of the country, and see changes in the database. In addition, authorized users will receive a digital rights management protected PDC format file (a form of secure PDF) containing the processing source code for CQLL and CQMM.

27. Updated Documentation. In conjunction with the release of CAM v4.0, the Bureau will shortly be posting updated methodology documentation for CAM v4.0, which provides more detail on the current model architecture, processing steps, and data sources. Additionally, the Bureau will be making available the input tables used in the CAM. The methodology documentation and the input tables will be available at <http://www.fcc.gov/encyclopedia/price-cap-resources>.

28. Illustrative Results. The Bureau also will shortly be releasing a new set of illustrative model outputs for CAM v4.0. The Bureau emphasizes, however, that it has not yet finalized the funding thresholds, and therefore these illustrative results do not represent final support amounts.

I. PROCEDURAL MATTERS

A. Initial Regulatory Flexibility Act Analysis

29. The Non-Contiguous Areas PN, 78 FR 12006, February 21, 2013, included an Initial Regulatory Flexibility Analysis (IRFA) pursuant to 5 U.S.C. 603, exploring the possible significant economic impact on small entities of the policies and rules proposed therein. The Commission invites parties to file comments on the IRFA in light of this additional document.

B. Paperwork Reduction Act

30. This document does not contain proposed information collection(s) subject to the Paperwork Reduction Act of 1995 (PRA), Public Law 104-13. In addition, therefore, it does not contain any new or modified information collection burden for small business concerns with fewer than 25 employees, pursuant to the Small Business Paperwork Relief Act of 2002, Public Law 107-198.

C. Filing Requirements

31. Pursuant to §§ 1.415 and 1.419 of the Commission's rules, interested parties may file comments on or before the date indicated on the first page of this document. Comments are to reference WC Docket No. 10-90 and DA 13-2304, and may be filed by paper or by using the Commission's Electronic Comment Filing System (ECFS).

- Electronic Filers: Comments may be filed electronically using the Internet by accessing the ECFS: <http://fjallfoss.fcc.gov/ecfs2/>.
- Paper Filers: Parties who choose to file by paper must file an original and one copy of each filing. Filings can be sent by hand or messenger delivery, by commercial overnight courier, or by first-class or overnight U.S. Postal Service mail. All filings must be

addressed to the Commission's Secretary, Office of the Secretary, Federal Communications Commission.

- All hand-delivered or messenger-delivered paper filings for the Commission's Secretary must be delivered to FCC Headquarters at 445 12th St., SW, Room TW-A325, Washington, DC 20554. The filing hours are 8:00 a.m. to 7:00 p.m. All hand deliveries must be held together with rubber bands or fasteners. Any envelopes and boxes must be disposed of before entering the building.
- Commercial overnight mail (other than U.S. Postal Service Express Mail and Priority Mail) must be sent to 9300 East Hampton Drive, Capitol Heights, MD 20743.
- U.S. Postal Service first-class, Express, and Priority mail must be addressed to 445 12th Street, SW, Washington DC 20554.

32. In addition, we request that one copy of each pleading be sent to each of the following:

(1) Katie King, Telecommunications Access Policy Division, Wireline Competition Bureau, 445 12th Street, SW, Room 5-B544, Washington, D.C. 20554; e-mail: Katie.King@fcc.gov;

(2) Charles Tyler, Telecommunications Access Policy Division, Wireline Competition Bureau, 445 12th Street, SW, Room 5-A452, Washington, D.C. 20554; e-mail: Charles.Tyler@fcc.gov.

33. People with Disabilities: To request materials in accessible formats for people with disabilities (braille, large print, electronic files, audio format), send an e-mail to fcc504@fcc.gov or call the Consumer & Governmental Affairs Bureau at 202-418-0530 (voice), 202-418-0432 (tty).

34. The proceeding this Notice initiates shall be treated as a "permit-but-disclose" proceeding in accordance with the Commission's ex parte rules. Persons making ex parte presentations must file a copy of any written presentation or a memorandum summarizing any

oral presentation within two business days after the presentation (unless a different deadline applicable to the Sunshine period applies). Persons making oral ex parte presentations are reminded that memoranda summarizing the presentation must (1) list all persons attending or otherwise participating in the meeting at which the ex parte presentation was made, and (2) summarize all data presented and arguments made during the presentation. If the presentation consisted in whole or in part of the presentation of data or arguments already reflected in the presenter's written comments, memoranda or other filings in the proceeding, the presenter may provide citations to such data or arguments in his or her prior comments, memoranda, or other filings (specifying the relevant page and/or paragraph numbers where such data or arguments can be found) in lieu of summarizing them in the memorandum. Documents shown or given to Commission staff during ex parte meetings are deemed to be written ex parte presentations and must be filed consistent with rule § 1.1206(b). In proceedings governed by rule § 1.49(f) or for which the Commission has made available a method of electronic filing, written ex parte presentations and memoranda summarizing oral ex parte presentations, and all attachments thereto, must be filed through the electronic comment filing system available for that proceeding, and must be filed in their native format (e.g., .doc, .xml, .ppt, searchable .pdf). Participants in this proceeding should familiarize themselves with the Commission's ex parte rules.

FEDERAL COMMUNICATIONS COMMISSION

Linda Oliver,
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